A. H. P.

Vol. 17. Parts 1–2. pp. 1–24. 1 pl., 12 figs. 20th February, 1948

THE PROCEEDINGS

OF THE

ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Series B.

TAXONOMY

(being the continuation of Stylops)

World List abbreviation: *Proc. R. ent. Soc. Lond.* (B)

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LONDON

PUBLISHED BY THE SOCIETY AND

SOLD AT ITS ROOMS, 41, QUEEN'S GATE, S.W.7

Price 8*s.* 0*d.*

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THREE NEW SPECIES OF GRYLLIDAE (ORTHOPTERA) FROM ARABIA

By L. Chopard.

I am indebted to Dr. B. P. Uvarov for the opportunity of studying three interesting small Gryllids collected by members of the Middle East Anti-Locust Unit in Arabia. One is a small *Myrmecophilus* allied to the widely distributed *M. americana* Saussure ; the other two belong to the most remarkable genus *Eremogryllodes*. This genus was described by myself in 1929 for a species collected by Th. Monod in the Ahaggar mountains ; another rather different species, from the same region (*E. seurati* Chopard) was also referred to this genus. A short time after the publication of these descriptions Miss E. F. Miram created for two species from Transcaspia a genus *Philobothrium*, which later on was changed into *Bothriophylax*, the first name being preoccupied. Thus two species from Ahaggar and two from Transcaspia were known and these species show such a number of common characters that it seems evident that *Bothriophylax* is a synonym of *Eremogryllodes*. The characters of these small insects are such that it is so difficult to place the species with certainty among the existing subfamilies of Gryllidae that Miram thought it necessary to erect for them a new subfamily Philobothriinae (Bothriophylacinae). Miram gives a certain number of rather poor characters, such as apterism, lack of auditory foramina, length of the legs in this subfamily, but also notes other and more important features as well, such as the peculiar structure of the eyes, the shape of the ovipositor and the armature of the posterior tibiae. As a matter of fact, these Gryllids exhibit characters belonging to several subfamilies. The head is almost that of the Mogoplistinae, with very wide interantennal space and strongly swollen face. The spines of the posterior tibiae, although very long and movable, are, in my opinion, quite different from those of Nemobiinae, and I do not agree with Miram in thinking that there are real affinities with this subfamily. The structure of the eyes is very peculiar ; I know the same only in a species of Mogoplistinae (*Eucycloptilum longipes* Chopard) living in human dwellings ; this may be due to convergence as nothing at all is known of the significance of this peculiarity.

In spite of the great difference in the general shape, it seems that the genus *Eremogryllodes* is rather close to *Myrmecophilus*. The spines of the posterior tibiae are very similar, and so is the metatarsus, which is unarmed above except for a very small subapical spine. Another very important feature reminiscent of the Myrmecophilinae is the shape of ovipositor, the superior valves of which are almost membraneous, crossing above and enveloping partially the inferior valves. However, the great difference in the shape of the cerci of the two groups shows that the affinity is only partial. On this evidence I consider that *Eremogryllodes* should be placed between the Myrmecophilinae and the Mogoplistinae.

The habits of *Eremogryllodes* are most interesting. The first species known from Transcaspia was found in the burrows of small rodents,

Spermophilopsis leptodactylus and *Gerbillus*; the second came from crevices in the walls of a house. The species from Ahaggar live in similar conditions, but also out of doors, as I found an example of *E. monodi* under a stone. As to the two species from Arabia, they are again found in the burrows of rodents or Carnivora. On the whole, these interesting insects are small Gryllids adapted to desert life and more or less associated with mammals burrowing in sand.

The types of the new species are in the British Museum (Natural History).

Myrmecophilus brevipalpis sp. n.

♂ A very small species, of a dark general coloration. Head short; fastigium of the vertex very wide; face short. Maxillary palpi very short; 3rd joint scarcely longer than wide, 4th also very short, strongly widening at apex, 5th nearly equalling the two preceding together, triangular, with inferior and apical margins equal in length, superior one much the longer, feebly convex. Antennae rather short, very thick at base and remaining so at least in their first half; 1st joint very large, yellow, as well as the 2nd, the remaining dark brown; all covered with a fine pubescence. Eyes very small, nearly completely hidden beneath the anterior margin of pronotum, composed of about 15 large ommatidia. Pronotum very large, scarcely narrowing in front, with straight anterior and posterior margins. Abdomen oval-shaped; 10th tergite with subangulate posterior margin; supero-anal valve rounded at apex, hollowed in the middle; subgenital plate rather small, navicular in shape. Cerci long and strong, with straight external margin, the internal one a little convex at base; apex ending in a small point; as is often the case in *Myrmecophilus*, they present a trace of segmentation with long, seriated bristles. Anterior and median legs rather short; femora compressed; anterior tibiae a little shorter than the femur, the median ones equalling it; tarsi as long as the tibiae, the metatarsus equalling the other two joints together; 3rd joint with parallel margins, bearing very small claws. Posterior femora very thick, one and a half as long as wide, with inferior margin regularly convex, superior one at first strongly convex, then almost straight to the apex; tibiae armed with one external spine near the apex, three internal ones, the first two rather small, the third somewhat curved and swollen at base; inferior spurs very small, median somewhat longer, superior almost equal on both margins; metatarsus very long, armed with an apical tooth and another very small one near the base.

Length 1·7 mm.

Type: Arabia: Artawiya, 26° 10′ N., 45° 30′ E., 19.ii.1946, running with ants, 1 ♂ (*D. Vesey-Fitzgerald*).

This very small *Myrmecophilus* is especially characterised by its very short maxillary palpi; the thickness of the antennae is probably restricted to the male sex. Although the female is unknown, the species seems close to *M. americana* Saussure, presenting the same armature of the posterior femora; besides the shape of maxillary palpi, it differs from it in the longer posterior metatarsi.

Eremogryllodes uvarovi sp. n.

♂ Very close to *E.* (*Philobothrium*) *vlasovi* Miram, from Transcaspia; presenting the same general shape and colour-pattern of very pale brown spots on a whitish background. Pronotum presenting a large brown spot along the anterior margin widening laterally, triangularly prolonged on the median line. Abdomen adorned with spots forming three longitudinal bands. Eyes as in *vlasovi*; maxillary palpi with 4th joint a little longer than 3rd, 5th rather strongly widening at apex, with apical angle somewhat hooked; antennae long, very fine. Anterior and median legs rather long and slender; anterior tibiae armed with two inferior spurs, median ones with the same inferior spurs and a very small supero-

external one ; tarsi a little longer than the tibiae, the metatarsus equals about one and a half the length of the other joints together ; apical claws tenuous and long but less so than in *vlasovi*. Posterior femora moderately swollen at base, with straight inferior margin, the superior one feebly convex ; tibiae armed on the internal margin with three spines slightly increasing in length from the 1st to the 3rd ; three external spines of which the 3rd is the shorter ; inferior and median external spurs short, the superior one exceeding

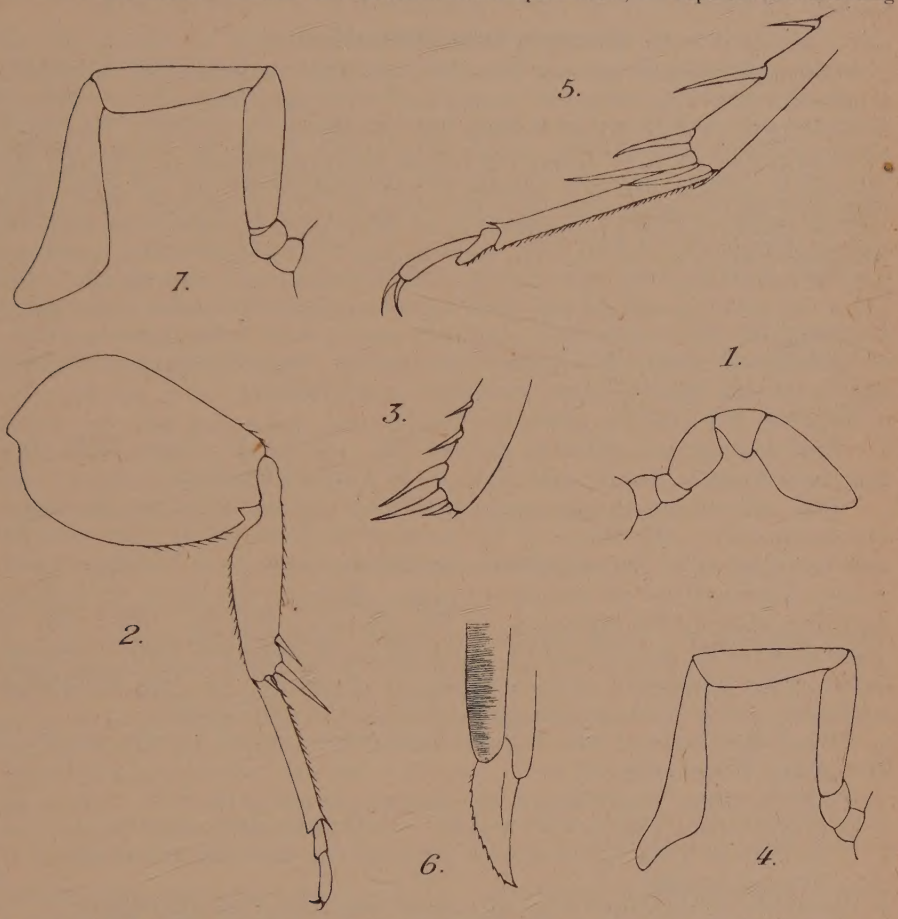

Fig. 1.—(1) Maxillary palpus of *Myrmecophilus brevipalpis* sp. n. ; (2) Posterior leg of same, external face. (3) Apical part of posterior tibia, internal face. (4) Maxillary palpus of *Eremogryllodes uvarovi* sp. n. (5) Apex of posterior tibia and tarsus of the same, internal face. (6) Apex of ovipositor. (7) Maxillary palpus of *Eremogryllodes fitzgeraldi* sp. n.

half the length of the metatarsus ; internal spurs similar but longer than the external ones ; tarsi long and slender, the metatarsus much longer than the other two joints together ; claws long and slender. Subgenital plate with a small rounded notch ; supero-anal valve rounded. Cerci long, slender, presenting traces of segmentation.

♀ General coloration more uniform. Subgenital plate with rounded posterior margin. Ovipositor rather long, straight, with wrapping, finely striated superior valves ; apical valves somewhat curved in the shape of a beak, with superior margin presenting a dozen very small teeth.

Length of body : ♂ 3·8 mm., ♀ 4·1 mm. ; post. fem., ♂ 3·2 mm., ♀ 3 mm. ; post. tib., ♂ 3·2 mm., ♀ 3 mm. ; ovipositor, 3·3 mm.

Type: Arabia: Artawiya, 26° 10′ N., 45° 30′ E., 19.ii.1946, rat holes in sand, 1 ♂ (*D. Vesey-Fitzgerald*); allotype, 1 ♀, 50 miles south of Jedda, 15.i.1945, under stone (*B. P. Uvarov*).

Although very close to *E. vlasovi*, this species is readily distinguishable by the number of tibial spines, which is four in the last named species.

Eremogryllodes fitzgeraldi sp. n.

Wholly whitish-yellow with a narrow light-brown band along the anterior and posterior margins of pronotum and the posterior margins of abdominal tergites. Eyes divided into a facetted and a smooth part as in other species of the genus. Antennae very slender, yellow. Maxillary palpi with 3rd and 4th joints equal in length, 5th widely triangular, with slightly concave superior margin. Anterior and median legs rather long and slender; tibiae equalling the femora, the anterior ones armed with two inferior apical spurs, median with two inferior and one supero-external spurs. Tarsi a little shorter than the tibiae, the metatarsus longer than the other two joints together; apical claws slender, moderately long. Posterior femora very short and thick, suddenly narrowing towards the apex; tibia armed with three external spines, of which the 3rd very short, three internal ones, the 1st very short, the other two subequal in length; apical spurs as in the preceding species; metatarsus armed with a small spine about the apical 5th. Subgenital plate deeply notched, forming two very long lobes, nearly meeting on the median line.

Length of body: 4·2 mm.; post. fem. 2·5 mm.

Type: Arabia: Balum, 27° 00′ N., 44° 00′ E., 10.iv.1946, dark interior of wolf's den, 1 immature ♂ (*D. Vesey-Fitzgerald*).

This interesting insect is unfortunately known from an immature specimen only; the shape of the subgenital plate seems very peculiar and reminiscent of *Eremogryllodes seurati* Chopard, from Ahaggar, which is also known from an immature male. Both species seem very close, agreeing also in the shortness of the posterior femora. They can be separated by the posterior tarsi, much longer in *fitzgeraldi* than in *seurati*. Some other character will certainly be furnished by the abdominal extremity when both species are known in the adult state.

The following key will help to distinguish the six known species of the genus *Eremogryllodes*:—

1. Posterior tibiae armed with 5 internal, 4 external spines . . 2
   Posterior tibiae armed with 3 spines on each margin (sometimes a very short spine is to be seen between the 2nd and 3rd of the internal margin) 4
2. Third joint of maxillary palpi very feebly widening at apex (Ahaggar) *monodi* Chopard
   Third joint of maxillary palpi triangular, strongly widening at apex (Transcaspia) 3
3. Tarsal claws abnormally long and slender (Turkmenistan) *vlasovi* Miram
   Tarsal claws slender but not abnormally so (Turkmenistan) *semenovi* Miram
4. Posterior femora rather long and slender (Arabia) . *uvarovi* Chopard
   Posterior femora short and thick 5
5. Posterior metatarsus very long, much longer than the long internal spur; small spine of the superior margin a little before the apex (Arabia) . . . . . *fitzgeraldi* Chopard
   Posterior metatarsus shorter, scarcely longer than the long internal spur; small spine of the superior margin nearly at apex (Ahaggar) *seurati* Chopard

THREE NEW SPECIES OF ETHIOPIAN ODONATA

By Lt.-Col. F. C. Fraser, I.M.S., Retd., F.R.E.S.

Three species of *Nesocordulia* McLachlan have been described—viz., *flavicauda* McLachlan, *rubricauda* Martin, and *spinicauda* Martin—and to these I now add another. The genus will probably prove to be a large one when more collecting has been done, and I suspect that it has run wild in Madagascar just as its near relatives in the genus *Idionyx* have done in the Western Ghats of India. My new species was considered doubtfully as *flavicauda* by the late Mr. Morton, but now that I come to examine it critically I wonder why such a determination was ever considered: the inaccessibility of the type and perhaps Martin's rather misleading redescription may have led to this.

Two continental species are also described here, one belonging to genus *Chlorocypha* Fraser, and nearly related to *C. tenuis* Longfield, the other to the genus *Prodasineura*. Hitherto, only a single species of this latter oriental genus has been found in Africa, and thus it occupied a rather anomalous position: the finding of a second species removes this isolation and shows that the genus, like others related to it, are widespread throughout the Old World tropics.

Nesocordulia mascarenica sp. n.

Male. Abdomen 34 mm. Hind-wing 31 mm.

Head: labium bright ochreous, labrum dark blackish-brown, epistome conspicuously bright chrome yellow flanked by metallic green, frons both in front and above, as well as the vesicle brilliant metallic emerald green, occiput dark brown, behind head and eyes glossy steely blue-black unmarked with yellow. Prothorax dark brown. Thorax brilliant metallic emerald green marked with citron yellow as follows: a short broad well-defined antehumeral stripe on the lower half of dorsum, a large triangular spot just posterior to the humeral suture, an upper and a lower spot on the mesepimeron and an elongate spot on the lower border of the metepimeron. All coxae bright yellow, legs otherwise black. Wings hyaline, uncoloured, membrane white, pterostigma small, black, 2·5 mm., covering one and a half cells; nodal index $\frac{9–13}{8–7}\Big|\frac{12–8}{7–10}$; anal-triangle 2-celled, anal-loop 14-celled, 2 to 3 accessory cross-veins to the bridge. Abdomen slender at base, broadening rather abruptly on segments 7 to 9 but narrowing on 10: dull black marked with citron yellow as follows: segment 1 with a small spot on the ventral border, segment 2 with an oblique oval dorsal basal spot on each side converging but not quite meeting across dorsum, and posterior to them and the jugal suture, two large oval dorsal spots, segment 3 with a linear dorsal spot on each side at base, tapering and inclined medially almost to meet its fellow from the opposite side: posterior to the jugal suture a lateral subdorsal stripe on each side quite out of alignment with the prejugal spot; segments 4 to 6 with similar basal spots but the postjugal ones absent: segment 7 with a broad basal ring covering rather less than the basal third of segment and broadly interrupted on the mid-dorsum by the black mid-dorsal carina: remaining segments unmarked. Anal appendages: superiors about twice the length of the mid-dorsal carina of segment 10, which latter is raised into a long thin keel with finely corrugated sides and ends in a strong beak-like spine at apical

border of segment directed straight backwards. The superior appendages pale yellow but rather infuscated at base and apex and coated with long greyish hairs, cylindrical, slightly sinuous in profile, slightly constricted at middle and elongately clubbed at the apical half. Inferior appendage about three-fourths as long, blackish-brown, paler at apex, narrow, elongately triangular, its apex curled up and ending in a small black spine.

Female. Abdomen 35·5 mm. Hind-wing 34·5 mm.

Colour and markings of head and thorax similar to the male. Wings (left fore-wing missing) hyaline, tinted reddish-brown : all triangles entire ; nodal index $\frac{?}{10\text{–}8} \Big| \frac{13\text{–}8}{8\text{-}12}$; two cubital veins in hind-wings. Membrane white. Abdomen : segment 2 with basal linear spots replaced by moderately large quadrate spots narrowly separated from the apical spot by the jugal suture : segments 3 and 4 similar to segment 3 in the male : segment 5 similar to the male, segment 6 with the basal stripe only but this running straight backwards instead of curved inward, the rest as for the male. Anal appendages shortly lanceolate, citron yellow.

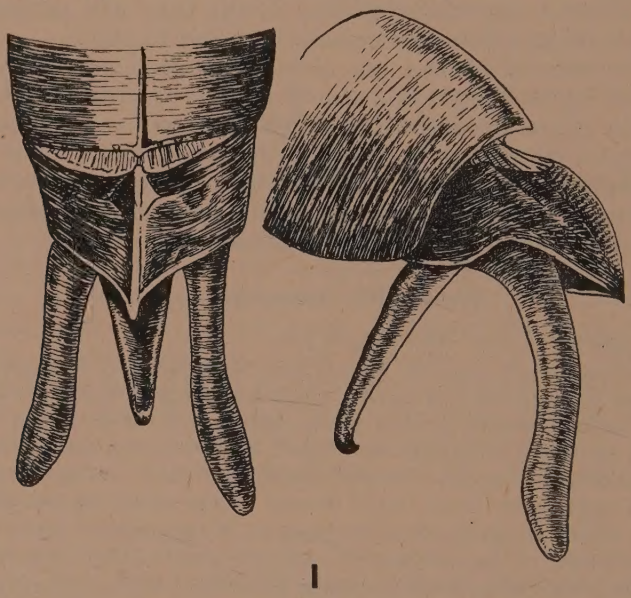

Fig. 1.—Anal appendages of *Nesocordulia mascarenica* sp. n., dorsal and left lateral aspects

Habitat : A single male from Madagascar : Mandritsara, without further data, purchased from Janson. A single female in the Paris Museum collection, with no data other than Madagascar : this specimen, along with another female, had been determined as *flavicauda* by Réne Martin, but only one belonged to that species. The male, in my collection, is the *type* : allotype female in the Paris Museum.

This new species differs from *flavicauda* in the following points : a large quadrate citron yellow spot in centre of face instead of a narrow transverse citron yellow stripe bordered below by dark green metallic : hypertrigones traversed by a single vein in all wings (the wing-figure given for *flavicauda* by Martin, *Cat. Coll. Selys*, shows the hypertrigone traversed by a vein : McLachlan gave as a generic character, *all*

triangles free) : a higher nodal index (12 to 13 antenodals and 8 to 9 postnodals in *mascarenica* against 13 antenodals and 11 postnodals in Martin's wing-figure, but only 10 antenodals and 8 to 9 postnodals in the type of *flavicauda* : it may be said here that this is only one of the discrepancies existing between McLachlan's and Martin's respective descriptions). No basal spine to superior anal appendages (McLachlan's description gives a robust triangular spine at basal third of superior anal appendages ; this is not shown in Martin's figure, although supposed to have been drawn from the type !), the black labrum and the black area behind the head quite unmarked with yellow. The female of *flavicauda* also has yellow rays in the costal and subcostal spaces which are quite absent in the new species : finally, the Paris female of *flavicauda* has all the triangles entire, which seems to be a specific character for this species, if McLachlan's description is correct. The new species differs from *rubricauda* by the head markings as well as those of the thorax and abdomen and by the different shape of the anal appendages ; *rubricauda* also has dark basal markings to its wings. Finally the new species differs from *spinicauda* Martin by the absent dorsal spine on segment 10 and the altogether different shape of the anal appendages : the markings of these two species, however, appear to be closely similar. The generic definition will need amendment to—"Hypertrigones free or traversed."[1]

Prodasineura villiersi sp. n.

Male. Abdomen 33 mm. Hind-wing 20 mm.

Head velvety black, marked only by a narrow transverse creamy white stripe across lower frons from eye to eye, its posterior border with three small notches. Prothorax, thorax and legs black, the dorsum of thorax between the humeral sutures broadly creamy white except a short space alongside the antealar sinus (fig. 2, *h*). Laterally a narrow white stripe traverses the mesepimeron and a second shorter one the lower part of metepimeron. Abdomen black, segment 1 with an oblique stripe each side converging forwards towards the dorsum, segment 2 with a very narrow mid-dorsal elongate white spot not extending to base or apex, narrow white annules interrupted dorsally on segments 3 to 6, the remainder unmarked. Wings hyaline, arculus distinctly distal to the distal antenodal, *Ab* arising well proximal to the level of *Ac* and then rejoining the posterior border of wing at about the level of the middle of the quadrilateral as in *P. vittata* (Selys) ; 15 to 16 postnodals to fore-wings, 14 in the hind ; pterostigma small, nearly quadrate, black.

Female. Abdomen 38 mm. Hind-wing 24 mm.

Head as in male, but the frontal stripe slightly interrupted at its middle ; there is also an obscure dark ochreous spot on the outer side of each ocellus on the vertex. Prothorax black with a pale yellow stripe on each side broadening on the middle lobe but only just invading the anterior and posterior lobes. The latter with its posterior border infolded to form a medial notch which divides the lobe into two subquadrate lobes : at the base of the middle lobe of the prothorax and to the outer side of the posterior lobe, a fine digitate process springs and inclines forward so as nearly to impinge on the dorsum of the middle lobe (similar to the same processes found in *Elattoneura pruinosa* (Selys)). Thorax velvety black with narrow creamy yellow antehumeral stripes extending upwards for about five-sixths of the length of dorsum and tapering abruptly to a point just short of the antealar

[1] Since the above was written, both Miss Longfield and I have examined the type of *flavicauda* McLachlan in the McLachlan collection, and we find the basal spine on the superior anal appendages present just as described by McLachlan.

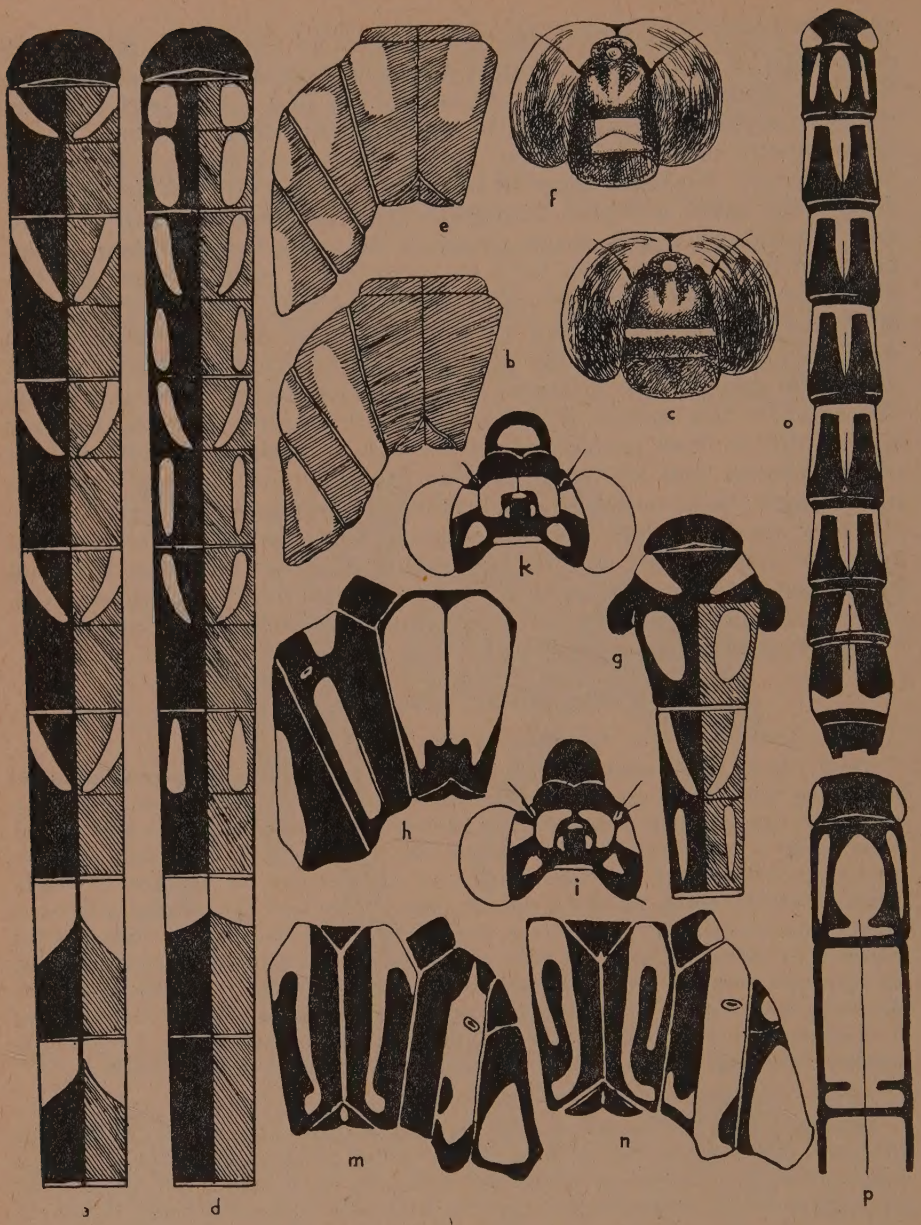

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Fig. 2.—*Nesocordulia flavicauda* McLachlan: *a*, abdomen of female; *b*, markings of thorax; *c*, head. *Nesocordulia mascarenica* sp. n.: *d*, abdomen of female; *e*, markings of thorax; *g*, segments 1 to 3 of abdomen of *Nesocordulia mascarenica* sp. n.; *h*, thoracic markings of *Prodasineura villiersi* sp. n., male; *k*, head of *Chlorocypha molindica* sp. n., female; *l*, the same of male; *m*, thoracic markings of male of *Chlorocypha molindica* sp. n.; *n*, the same of female; *o*, abdomen of female; *p*, basal segments of abdomen of the male of the same species.

sinus. The sides pale yellow from a level just short of the humeral suture and traversed by a broad black stripe centred over the postero-lateral suture : a second narrower stripe borders the lower part of the metepimeron and border of pectus. Legs black, coxae and trochanters yellow. Wings hyaline : pterostigma olivaceous brown, framed narrowly in paler and then black nervures, covering one cell, diamond-shaped, very oblique and acutely pointed at both ends. Abdomen velvety black, the sides of segments 1 and 2 and extreme base of 3 yellow, forming a complete ring at base of latter. Vulvar scale robust, extending to end of abdomen, blackish.

Habitat : A single male from CÔTE D'IVOIRE : Yapo, 80 km. north of Abidjan, x.46 (coll. *A. Villiers*, after whom this new species has been named in recognition of much valuable material placed at my disposal). A single female from W. AFRICA : Atok, vii.39 (coll. *Dr. Lepesme*). The only other species of *Prodasineura* found in Africa is *vittata* (Selys), and this has a simple linear antehumeral stripe on each side of dorsum of thorax so cannot possibly be confused with the new species. Selys expressly stated that *vittata* female was without armament on the posterior lobe of prothorax although this is difficult to believe. Cowley's definition for the genus *Prodasineura* gives the female as possessing armature on the prothorax : it should be "with or without armature to posterior lobe of prothorax." *Type* male of *P. villiersi* in the Institut Francais d'Afrique Noire, Dakar. Female allotype in the Paris Museum.

Chlorocypha molindica sp. n.

Male. Abdomen 20 mm. Hind-wing 22 mm.

Head mainly velvety black, the extreme base of labium brownish, a bright yellow transverse stripe across vertex from eye to eye made up of a triangular spot against each eye and two medial angulated spots which partially enclose the ocellar space in front and at the sides : small triangular postocular spots and a narrow stripe bordering the occiput. Prothorax with a large oval spot on each side, the middle lobe and a mere point at each outer end of the posterior lobe chrome yellow. Thorax velvety black marked with greenish-yellow as follows : complete antehumeral stripes expanded into a triangular spot at the upper part and very broadly confluent with a vestigial humeral stripe at the lower end, the hook thus formed facing outwards (i.e., quite opposite to what is found in nearly all other species): laterally a broad stripe on the mesepimeron and a large triangular spot on metepimeron. Beneath thorax yellow traversed from side to side by three black lines. Legs entirely black. Wings hyaline tinted with pale amber yellow at bases to as far out as nodus along the costa and to end of quadrilateral at middle of wing : pterostigma black, 2 mm. in length : 10 to 11 antenodals and 18 to 23 postnodals in all wings : quadrilaterals traversed only once (rarely twice) : petiolation of wing ceasing at level of second antenodal vein. Abdomen blood red on dorsum, black beneath : segment 1 with a large oval spot each side and segment 2 with a narrow lateral stripe of chrome yellow ; the latter segment also with a mid-dorsal blood-red spot shaped like an egg in an egg-cup, the stem and stand of the latter resting on apical border of segment. Segments 3 and 4 with narrow subapical horizontal projections of the lateral black on dorsum but not quite meeting in the middle line : all segments with fine apical black rings. Anal appendages black, of the usual stilette-shape of the genus.

Female. Abdomen 19 mm. Hind-wing 25 mm.

Head very similar to that of the male but the markings rather more extensive and there is an additional rounded spot on the upper surface of epistome ; prothorax as in the male ; thorax with the humeral stripe well developed and extending for about two-thirds the length

of dorsum ; laterally there is an additional juxta-humeral spot on the upper part of sides and two additional small rounded spots below. Legs black but coxae and trochanters yellow. Wings hyaline, untinted, pterostigma and venation exactly as in the male. Abdomen of primitive colour and markings : segment 1 with a large yellow spot on each side, segment 2 with a mid-dorsal spot and narrow lateral stripes of greenish yellow extending nearly the whole length of segment, segments 3 to 7 black on dorsum with yellow basal rings from which project three prongs extending nearly the whole length of segments and resembling inverted tridents ; segment 8 black with a mid-dorsal triangular spot with its apex directed basalwards, segment 9 with a mid-dorsal stripe confluent with a broad apical stripe of greenish yellow, segment 10 and the long acuminate anal appendages black.

Habitat : Two pairs Belgian Congo : R. Molindi, 11.v.34 (coll. *Prof. G. F. de Witte*). This species resembles *C. tenuis* in the reddish colouring of its long slender abdomen without conspicuous black markings : in this new species, however, segment 2 has a conspicuous mid-dorsal spot of the ground-colour enclosed by black. The dorsal marking of the thorax is also closely similar to that of *tenuis* so that these two form a small group apart from the rest of the genus. *Type* male and allotype female in the Congo Belge Museum.

Bibliography.

McLachlan, R., 1882, *C. R. Soc. ent. belge* **26** : clxx.
Kirby, W. F., 1890, *Cat. Odon.* : 53.
Martin, R., 1900, *Bull. Mus. Hist. nat. Paris* **6** : 108.
——, 1902, *Bull. Mus. Hist. nat. Paris* **8** : 511.
——, 1906, *Cat. Coll. Selys, Cordulines*, **17** : 50, ff. 64–67.
Longfield, C. E., 1936, *Trans. R. ent. Soc. Lond.* **85** : 468, f. 1.
Cowley, J., 1936, *Ann. Mag. nat. Hist.* (10) **17** : 519, f. 6.

NOTES ON THE MALES OF *PAPILIO DARDANUS* BROWN (LEP.), WITH THE DEFINITION OF A NEW TRANSITIONAL RACE AND A REDESCRIPTION OF *P. DARDANUS OCHRACEA* POULTON.

By Professor G. D. Hale Carpenter, M.B.E., D.M.

Dr. Karl Jordan in 1905 separated races of *Papilio dardanus* as follows :—

1. *P. d. cenea* Stoll, of "South Africa," towards the north meeting—
2. *P. d. tibullus* Kirby, ranging from north of Delagoa Bay to Mombasa, Pemba Island, and north-westwards to Ukamba (north-east of Nairobi). The western limit between it and the next two was not defined.
3. *P. d. polytrophus* Rothschild and Jordan, living in the mountainous region east and west of the Rift Valley.
4. "Transitional forms" from the neighbourhood south, east, and north of Lake Victoria.[1] Jordan describes these transitional forms as, in markings, partly like *tibullus*, partly like the next form, the West African *dardanus*, or partly even like *polytrophus*. Examples from Muanza (at the south end of Lake Victoria), from the south-east of the lake, from east and from north of the lake, were discussed as to coloration and genitalia, and considerable variation in both was found. The southern race *cenea*, and the eastern *tibullus* and *polytrophus*, have a strong spine projecting from the inner side of the clasper, arising from near the distal end of the base of a finely toothed flange which runs horizontally along the inner face of the clasper (fig. 1).
5. *P. d. dardanus* Brown extending from Unyoro and Lake Tanganyika to the west coast, with a long finely toothed flange on the clasper quite destitute of the spine, with extremely rare exceptions (fig. 2).

The development of the black markings on the hind-wing is greatest in *tibullus* and least in *polytrophus*, while in *cenea* and *dardanus* it is about equal, which, in passing, is interesting since the more humid western forest region usually increases the amount of melanin. The intermediate forms are often as pale as *cenea*, but do not have the continuous dense black band which, in typical *tibullus*, stretches across the wing completely unbroken. The areas in which the break occurs are between veins 3 and 4, and 5 and 6.

Recently I prepared a special exhibit in the Oxford University Museum to illustrate the whole species-complex and the development of the mimetic females, but found it impossible to delineate the distribution of the "transitional" form on the map, and took up the question with Dr. Jordan, to whom I am greatly indebted. He kindly wrote that since 1905 very much more material has become available, especially from Nyangori (east of the Kavirondo gulf of Lake Victoria),

[1] E. B. Ford (1936 : 439) somewhat misrepresents this by writing : "It is found in Uganda and Tanganyika Territory west of Lake Victoria and merges into *dardanus dardanus* further westwards."

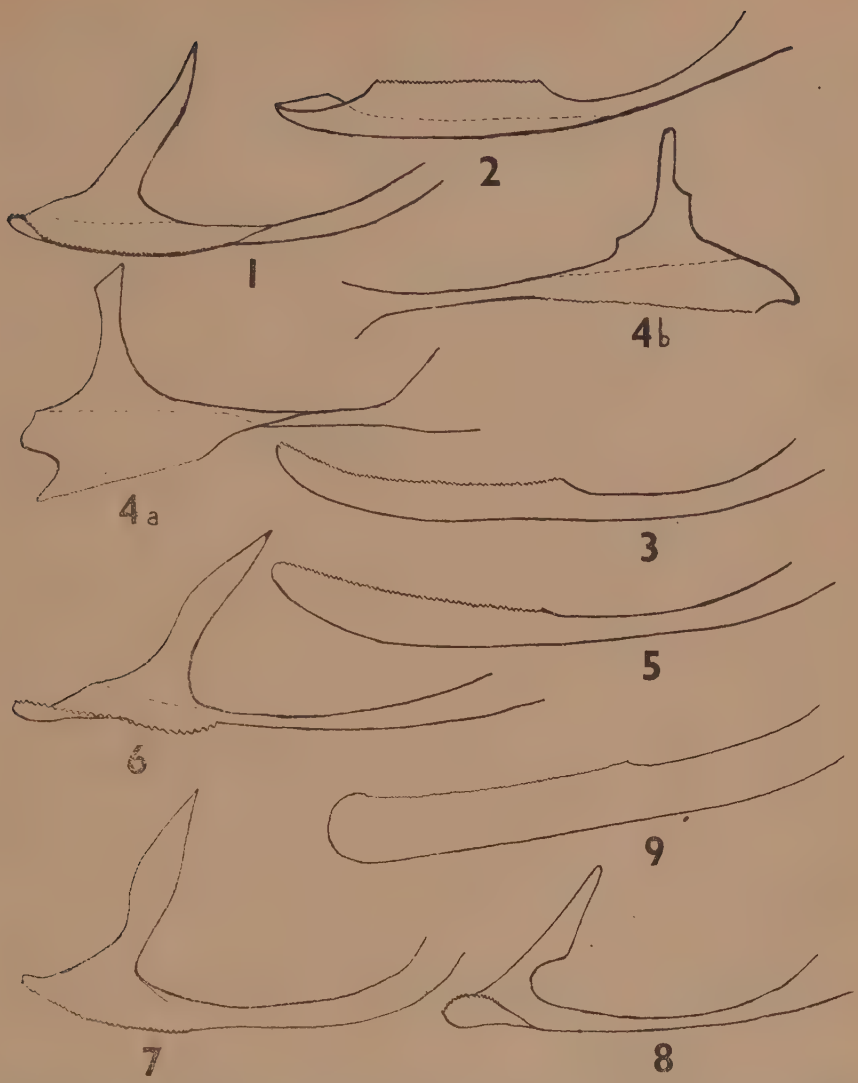
and from Muanza (south of the lake). But he pointed out that, while in general appearance these specimens are transitional between the heavily marked *tibullus* and the less heavily marked *polytrophus* and *cenea*, the genitalia are of the two types, and suggested that I should work out the relations between these various forms at greater length. This I have now done, thanks to the kindness of the Keeper of Entomology, British Museum (Natural History), who allowed me to borrow for dissection a large number of specimens both from South Kensington and Tring. I am deeply indebted to him, to Dr. K. Jordan, F.R.S., Mr. A. G. Gabriel, and Mr. F. Goodson, who have made this study possible, and to my senior laboratory assistant, Mr. E. Taylor, for his skill in making preparations of the genitalia.

As a result of these investigations I find that the western *d. dardanus*, without the spine on the clasper, extends continuously from the west coast of Lake Victoria along its north coast and along the north side of the Kavirondo gulf to the edge of the high country, Nyangori, Tiriki hills and the Nandi country (figs. 2, 3). Occasional specimens with this type of genitalia occur in the Lake Tanganyika area and even from so far east as Usambara and North Kilimanjaro. One specimen in the British Museum at Tring, labelled "Parumbira, Nyasaland," was collected by Dr. Ansorge, 25.x.1893; it is indistinguishable from normal western specimens. Regarding the eastern limit of *d. dardanus* along the west coast of Lake Victoria and the eastern rift there is insufficient material for a decision, and more specimens would be of interest. One from Bukoba, in the British Museum, proved to be of the transitional race to be described below. The more eastern *d. dardanus*, on the whole, have less black on the hind-wing than those from north of the lake on the west side of the Nile, and the tail may be completely free from black markings. On the other hand, specimens from Fajao in Unyoro, at Tring, have the marginal zig-zag black marking as well developed as in some transitional specimens.

A most interesting abnormal specimen, taken by T. T. Behrens, R.E., on the Buddu (north-west) coast of Lake Victoria, is figured on Plate 1. (fig. 1). Its general appearance strongly suggests the Madagascan *meriones* Felder (Pl. 1, fig. 2); the tail is solidly black, the marginal zig-zags well developed on the hind-wing, and the edge of the black on the fore-wing deeply embayed. The discal black on the hind-wing is slightly more developed than in *meriones* but is in the same condition as in the transitional race. The genitalia are abnormal (fig. 4A, 4B), the spine being of irregular shape and different on the two claspers. This specimen speaks plainly of interbreeding between western and eastern races.

A normal *d. dardanus* from the same area is shown at Plate 1, fig. 4.

A most interesting point has emerged from this work. *Papilio dardanus* is found on the mountains along the Sudan–Uganda border and all the nine specimens dissected from that locality have genitalia of the spineless type of *d. dardanus* (fig. 5). Specimens from Abyssinia, including the Boma plateau, however, as indeed Dr. Jordan pointed out in 1905, have a long spine indicating affinity with the eastern races (fig. 6). This is particularly noteworthy in the light of much evidence



FIGS. 1–9.—Male genitalia ; the structure on the internal surface of the valve in various forms of the *Papilio dardanus* complex. Figs. 1, 6, 7, 8 show the eastern type, figs. 2, 3, 5, 9 the western type. Figs. 4A, 4B are the structures on the two sides of the body, differing from each other, and combining features of east and west.

FIG. (1) East Africa, Mombasa, September to November, 1901, C. A. Wiggins.
(2) West Africa, Gold Coast, Winneba, C. H. Williams.
(3) Kenya Colony, Nandi plateau.
(4) Uganda, Buddu coast on west of Lake Victoria, between 3rd December, 1902, and 1st March, 1903, T. T. Behrens. (*See* Plate 1, fig. 1.)
(5) South Sudan, Mongalla Province, Acholi Hills, Lotti, March, 1930, F. Moysey.
(6) South-west Abyssinia, Ganji River, 7° 34′ N., 35° 26′ E., 27th January, 1927, Arnold Hodson.
(7) Somaliland, forty-five miles south-east of Berbera, Golis mountains, 6,000 ft., near top of Wagar mountain, 22nd July, 1906, H. A. Byatt.
(8) Madagascar, east, Ambinanindrano, Mahanoro, 400 ft., 21st June, 1917, G. K. Kestell-Cornish.
(9) Grand Comoro, 1912.

All the specimens except (3), which is in the British Museum (Natural History), are in the Hope Department, Oxford University Museum.

that Abyssinia has derived fauna from the West African subregion, as well as from the east. (See Carpenter, 1935 : 411–422, 426–430, and Appendix 2 by E. J. Wayland, 436–7). It would seem that *dardanus* must have entered the Abyssinian forests from East Africa after connections with West Africa had been severed, and there has been no link between the *dardanus* of South Sudan and those of Abyssinia ; the Somaliland race *d. byatti* Poulton has genitalia also of eastern type (fig. 7). This supposition is supported by the primitive character of the females in Abyssinia and Somaliland analogous to that of *meriones* in Madagascar. Apparently *dardanus* originated on the east side and spread into the western forests, becoming there a different race.

This seems an appropriate place to note another interesting point which has emerged from the study of the genitalia. Dr. Jordan in his paper (*loc. cit.*, p. 200) showed that *meriones* of Madagascar has spined genitalia of eastern type (fig. 8), whereas *humbloti* Oberthur, of the Comoro islands, has no spine (fig. 9), thereby suggesting western affinities. The absence of the spine had been reported by Rothschild and Jordan (1903 : 488).

These facts I have confirmed by further examination of specimens in the Hope Department. Recently, in a study of the races and distribution of *Charaxes etesipe* Godart and *Ch. penricei* Rothschild, I found a similar state of affairs, the Comoro island *paradoxa* Lathy being apparently nearer to western *e. etesipe* while the Madagascan race *cacuthis* Hewitson seemed nearer to the south-eastern *penricei*. An explanation suggested, that the western *etesipe* at one time extended over more of East and South Africa but, with deforestation, retreated and gave rise to *tavetensis* Rothschild and *penricei* which were adaptations to drier climate as evidenced by less melanin, does not accord with the characters of the forms of male *dardanus*, for the eastern *tibullus* has far more melanin than *d. dardanus* inhabiting the western rain forest area (1947B : 102).

Endeavours to find other cases of difference between the faunas of Madagascar and the Comoro Isles have not been successful, and further knowledge is desirable ; for the present there are these two cases in unrelated butterflies.

The "Transitional" race will now be defined, and the name *meseres*, which I owe to the Rev. Prof. L. W. Grensted, D.D., is here applied to it.

P. dardanus meseres sub. sp. n.

The specimen selected as the type is sufficiently well shown by Pl. 1 (fig. 3). It is one of seventeen, of which the genitalia as in fig. 1 have been examined from the following localities : Kenya Colony, South Kavirondo, Suna, 7 ; Masai Reserve, Mara river, 2. Tanganyika Territory, Mwaya, 1 ; Muanza, 3 ; Ukerewe Island, 3 ; Bukoba, 1.

These paratypes vary considerably in the development of the black. One from Suna has the tail completely yellow, the discal band reduced to three patches separated by pure yellow in areas 3 and 5, and the zig-zag marginal markings behind vein 6 reduced to minute spots : from coloration only it might be classed as *d. dardanus*. But another Suna specimen

has the tail heavily margined and centred with black, the zig-zag border continuous and heavy, and the black discal band only slightly interrupted in area 5, and with a narrow black loop connecting the distal ends of the black areas in 4, 5 and 6. Indeed this, and similar specimens in the Muanza-Ukerewe series, might be classed as lightly marked *tibullus*.

Type in the British Museum (Natural History): also paratypes, except for one at Oxford, received by exchange.

Further collections are necessary to determine the limits of this intermediate race.

Another series will now be discussed. In 1924 Poulton gave an account of specimens collected in 1923 by a native collector for Dr. V. G. L. Someren on Marsabit, a mountainous mass lying about 155 miles north of the equator and 140 miles to the east, and slightly to the south, of the southern extremity of Lake Rudolf. Attention was chiefly directed to the three females which were described as a new form *cenea ochracea*, differing "from *cenea* in the deep ochreous colour of all the markings." The single male associated with them was not discussed, but Dr. Van Someren is quoted as saying "the males are large and nearer to *polytrophus* Jord., than to *tibullus* Kirb."

Through the generosity of Mr. T. H. E. Jackson, F.R.E.S., who in 1946 collected a large number of these butterflies, I have been able to study a series of fifty-one males as well as the original specimen. They show the same variability in the development of the black markings as the series just described, but the development is on the whole greater than in *polytrophus*, and the posterior end of the marginal black on the fore-wing does not show the considerable narrowing in the tornus exemplified by *polytrophus*. On the hind-wings the black markings often approach those of *tibullus*: indeed it is impossible to separate these males from *meseres*.

The following tabular statement shows the characters of the black markings, and may be compared with the similar table recently given (Carpenter, 1947A) for the race *flavicornis* from the neighbouring Mt. Kulal, as indicated by the figures here added in brackets.

ab. maculatus Suffert with pale spots in black border of fore-wing	21·2% (63·1). When present they are very small indeed, and often only in one or two areas.
Hind-wing black band	interrupted 59·6% (73·5). complete 40·4% (26·5).
Hind-wing marginal black	discontinuous 44·3% (31·6). continuous 55·7% (68·4).
Tail marginal black	Not fusing with central black on vein— 78·4% (61·1). Fusing with central black on vein— 21·6% (37·9).

The Marsabit specimens have a lower proportion of ab. *maculatus*, the discal band of the hind-wing is heavier but the marginal black slightly less heavy; the tail is blacker. Thus the Kulal *flavicornis* are on the whole lighter, if the average appearance be taken.

The attempt to fix the status of the Marsabit specimens caused me considerable difficulty. On the one hand, and perhaps most important,

is the fact of geographical distribution of the peculiarly coloured female which seems the prevalent form. As regards wing coloration the specimens from Mount Kulal are so similar that it might be claimed that one name could embrace both. But the unique yellow antennae of both sexes at Kulal allows them to be clearly distinguished : this race has obviously been isolated longer than the Marsabit specimens. Moreover the average male on Kulal could be separated from the average male on Marsabit. On the other hand, as has been said, the Marsabit males correspond closely to the form just named *meseres*, and were it not for the discontinuity of distribution might be considered as the northern arm of that race, with a form of female also shared by *flavicornis*. There is a parallel in the female form *cenea*, shared by more than one race. Moreover there is also a form on Marsabit of the black and white *hippocoonoides* Haase, though there are some peculiarities which mark it off from typical specimens. At present I have not found specimens of *meseres* to the north of the Kavirondo gulf : further investigation of the fauna on the highlands in a south to north direction might, however, link up South Kavirondo with Marsabit, though the specimens of *meseres* that have been examined are inhabitants of comparatively low-lying country, while Marsabit is an elevated mass in an area much less suited to the usual needs of forms of this *Papilio*. Therefore the Marsabit specimens are considered to be another race of *Papilio dardanus*, and the question of a name arises. Poulton (1924) merely considered the females, which he described thus : "*Papilio dardanus* Brown, n. ♀ f. *cenea ochracea*.—Differs from *cenea* in the deep ochreous colour of all the markings, harmonising with but somewhat paler than those of its model *A. lobengula septentrionis*." The type, now in the Oxford University Museum, was "one of twelve examples received from Marsabit by Dr. van Someren." It will be noted firstly that Poulton used a double, unhyphenated name, and that if this were to be elevated to subspecific rank the polynomial *Papilio dardanus cenea ochracea* would be contrary to Article 15 of the International Rules.

Another difficulty, of a very practical nature, is the confusion that would arise between *cenea* and *cenea ochracea* if each were a subspecific name, the former being also a form name and the latter, as a form name, being also applicable to the race *flavicornis*. I therefore take the name of the Marsabit race, which I re-describe below, to be :—

Papilio dardanus ochracea Poulton.

Type.—The female captured by Dr. V. G. L. Van Someren, Marsabit, July, 1923, with allotype male, and two paratype females, with the same data. I have also studied a series of forty-four females from Mr. T. H. E. Jackson belonging to the males previously discussed.

The general appearance is that of form *cenea*, but the pale areas are of Ridgway's "ochraceous orange" (1912, plate 15) or, when slightly paler, "ochraceous buff." The paired spots near the margin of the hind-wing are larger than in *cenea*.

♀ Fore-wing : Submarginal spots in 1*b*, 2, 3 and 7. Discal spots in 1*b*, 2, 4, 5, 6 and 8 ; there is in both paratypes also a spot at the base of area 9, absent from the type. That in 2 is the largest, occupying the basal half of the area except that it does not quite fill the basal

Carpenter: Males of *Papilio dardanus* and *P. meriones*.

angles : the spot in 1*b* is a dyslegnic continuation of its posterior border and is very variable among the recent series examined, even being absent in some. The spots in 4, 5, 6, 8 likewise vary in size : they may blend to form a diffuse patch ; in the type, 5 is extremely small and only forms a short streak abutting on the posterior margin of 6 : it may be absent as in the two paratypes. Near the end of the cell there is a narrow curved spot, which varies much in appearance in the series. In the type and one paratype there is a small ochraceous area on the inner margin of the fore-wing. It is variable and dyslegnic, and is absent from the other paratype.

Hind-wing : The basal ochraceous orange in the type extends beyond the end of the cell to just over half the length of the wing from base to end of vein 3. In some specimens including one paratype it is slightly larger. In some of the recent series it barely extends beyond the end of the cell, but is generally as in the type. The paired submarginal spots are conspicuously larger than in *cenea*. The under surface of *ochracea*, except for the somewhat stronger yellowish coloration, and the details of spotting that have been mentioned, only differs from *cenea* by the black band on the hind-wing not being so clearly interrupted by yellowish colour in area 5 : in *ochracea* the type shows very little difference between area 5 and the areas on each side of it in the black band. One of the paratypes, however, and many of the recent series, are like *cenea* in this respect.

One specimen of the recent series is very much paler and except for the differences in the spots on the hind-wing comes almost under the name *cenea*. Among the females there are also three specimens of the general appearance of *hippocoonoides* Haase, but with the dark ground colour less deeply black.

The *male allotype* has the appearance of the type of *meseres* already described and figured except that on the hind-wing the black band is not thinned in area 3, and the margin of the black band of the fore-wing is more deeply and regularly denticulated.

Bibliography.

Carpenter, G. D. Hale, 1935, The Rhopalocera of Abyssinia, a faunistic study. *Trans. R. ent. Soc. Lond.* **83** : 313–447.

——, 1947A, A new subspecies of *Papilio dardanus* Brown. *Proc. R. ent. Soc. Lond.* (B) **16** : 55–56.

——, 1947B, The geographical distribution of the forms of the African Nymphaline butterflies *Charaxes etesipe* Godart and *Ch. penricei* Rothschild. *Trans. R. ent. Soc. Lond.* **98**: 91-104.

Ford, E. B., 1936, The genetics of *Papilio dardanus* Brown (Lep.). *Trans. R. ent. Soc. Lond.* **85** : 435–466.

Jordan, K., 1905, Der Gegensatz zwischen geographischer und nichtgeographischer Variation. *Z. wiss. Zool.* **83** : 151–210.

Poulton, E. B., 1924, *Proc. ent. Soc. Lond.* **1924** : xxvii–xxix.

Ridgway, R., 1912, *Color standards and color nomenclature.* Washington.

Plate 1.

Males of *Papilio dardanus* and *P. meriones*.

Fig. 1.—*P. dardanus*, abnormal specimen, Uganda, Buddu coast on west of Lake Victoria, between 3rd December, 1902, and 1st March, 1903, T. T. Behrens. Oxford University Museum.

Fig. 2.—*Papilio meriones* Felder, Madagascar, east, Ambinanindrano, Mahanoro, 400 ft., 21st June, 1917, G. K. Kestell-Cornish. Oxford University Museum.

Fig. 3.—*P. dardanus meseres* subsp. n., Type. Kenya Colony, South Kavirondo, Suna, June, 1932, W. Feather. British Museum (Natural History).

Fig. 4.—*P. dardanus dardanus* Brown. West Africa, Gold Coast, Winneba, C. H. Williams. Oxford University Museum.

NEW OR LITTLE-KNOWN SPECIES OF EXOTIC TIPULIDAE (DIPTERA)—V

By Professor Charles P. Alexander, F.R.E.S.

(Massachusetts State College, Amherst, Massachusetts.)

The immediately preceding part under this title was published in 1946, *Proc. R. ent. Soc. Lond.* (B) 15 : 132–139. In the present report I am continuing the survey of the Ethiopian Tipulidae, the majority of the species herein considered being from Southern Rhodesia where they were collected by the late Mr. Alexander Cuthbertson. As indicated under Part III of the series, by Mr. Cuthbertson's last wishes, the types of the various novelties based on his materials were to be distributed as follows : the first specimen in the author's collection, the second in the British Museum (Natural History), the third in the Rhodesian Museum.

Limonia (Metalimnobia) tigripes sp. n.

Size relatively small (wing, female, less than 8·5 mm.) ; general coloration of mesonotum dark brown, the praescutum with three conspicuous yellow stripes ; head above with a silvery vitta, bordered on vertex by brown areas ; thoracic pleura pale, with a narrow transverse brown girdle on the mesepimeron ; legs yellow, the femora with four narrow brown rings, the last narrowest, subterminal in position ; wings with the ground colour yellow, conspicuously patterned with dark and paler brown clouds and marblings ; *m-cu* about one-third its length before the fork of *M* ; abdomen with the more basal tergites medium brown, the outer segments more brownish-yellow, restrictedly patterned with brown.

Female. Length about 8 mm. ; wing 8·3 mm.

Rostrum and palpi black. Antennae with the scape and pedicel light yellow ; flagellum broken. Head with front and anterior vertex silvery, the colour continued over the posterior vertex as a capillary silvery vitta, bordered on either side by dark brown markings ; sides of posterior vertex and the genae brownish-yellow ; anterior vertex narrow, less than the diameter of scape.

Pronotum yellow medially, with a narrower brown sublateral stripe, the lateral borders brownish-yellow. Mesonotal praescutum with three conspicuous yellow stripes, the interspaces dark brown ; median pale stripe broadest, lateral stripes confluent with the pale humeral areas ; darkened interspaces bordering the median yellow area for its entire length with the exception of a short break at or just beyond midlength of the sclerite ; scutellum and the restricted median region of the scutum testaceous, silvery pruinose ; each scutal lobe variegated yellow and dark brown, the latter including an extensive area adjoining the midline and a small isolated lateral spot ; mediotergite chiefly blackened, vaguely paler on central portion and behind ; pleurotergite extensively blackened, the posterior ventral portion paler. Pleura chiefly pale, especially on the mesepisternum ; mesepimeron with a narrow brownish-black transverse girdle over the pteropleurite, becoming narrower and much less evident on the meron ; a narrow transverse darkening over the cephalic portion of mesepisternum. Halteres with stem yellow, knob broken. Legs with the coxae pale yellow, the fore pair vaguely darkened basally ; trochanters yellow ; femora yellow with four dark brown rings that alternate with the ground interspaces, the light and dark rings subequal, the apex yellow ; subterminal dark annulus narrower than the others, the most basal one, at near two-fifths the length of the segment, somewhat more diffuse ;

tibiae yellow, the tips narrowly but conspicuously brownish-black; tarsi yellow. Wings with the ground colour yellow, more saturated in the prearcular and broad costal fields, conspicuously patterned with dark and paler brown; the former areas include four small spots in cell *R*, the first arcular, the third at origin of *Rs*, the last at fork of *Rs*; stigma yellow, narrowly ringed with brown; other small darker spots at fork of *Sc*, along cord and outer end of cell 1*st* M_2; the pale brown clouds or marblings occupy all cells beyond cord and behind vein *M*, being more extensive than the ground areas; veins yellow in the brighter ground field, light brown in the medium portions and dark brown in the darkest areas. Stigma with a few trichia. Venation: SC_1 ending about opposite three-fifths *Rs*, Sc_2 near its tip; R_2 and free tip of Sc_2 subequal or the latter a little longer; *Rs* long, angulated at origin; cell 1*st* M_2 about equal in length to the distal section of vein M_3; *m-cu* from about one-third to one-fourth its length before the fork of *M*.

Abdomen with the more basal tergites medium brown, the outer segments, including the ovipositor, paler and brighter, brownish-yellow, the posterior lateral angles of the segments restrictedly more darkened; sternites yellow, the posterior borders narrowly pale brown, more intensely so on the posterior lateral corners; bases of hypovalvae narrowly blackened. Ovipositor with cerci slender, gently upcurved.

Holotype, ♀, Mimbomimbo, Cameroun, 31st January, 1938 (*Jacob A. Reis*); Alexander Collection.

Limonia (*Metalimnobia*) *tigripes* is quite distinct from all other regional members of the genus. Despite the lack of a male specimen, I have little hesitancy in referring the species to *Metalimnobia*, where it is most similar to species such as *L.* (*M.*) *atrichoptera* Alexander, yet quite distinct.

Limonia (Dicranomyia) sordidipennis sp. n.

Belongs to the *tristis* group, allied to *marshalli*; general coloration grey, the praescutum more greyish-brown, the median region darker brown but without distinct lateral stripes; legs light brown, the terminal segments darker; wings narrow, about five times as long as broad, with a brownish tinge; inner end of cell R_3 lying far basad of the other elements comprising the anterior cord; *m-cu* oblique, about three-fifths its length before the fork of *M*; male hypopygium with the caudal border of the ninth tergite strongly convex; basistyle with a blackened lobule on face, additional to the ventromesal lobe; ventral dististyle with three rostral spines; gonapophyses with the mesal-apical lobe an acute curved blackened hook.

Male. Length about 7 mm.; wing $8{\cdot}2 \times 1{\cdot}6$ mm.

Rostrum and palpi black, the former somewhat lengthened and pendant. Antennae black throughout; flagellar segments oval. Head light grey; anterior vertex slightly narrower than the diameter of the scape.

Pronotum dark brown. Mesonotum chiefly grey, the posterior sclerites clear light grey; praescutum and scutal lobes more greyish-brown, the former with a darker brown median stripe, the laterals not differentiated. Pleura grey. Halteres relatively long, stem whitened, knob infuscated. Legs with the coxae pale, pruinose; trochanters yellow; remainder of legs light brown, the terminal segments darker; fore femora not different in colour from the other pairs. Wings narrow, with a brownish tinge, the prearcular and costal portions paler yellow; stigma very small and inconspicuous, a little darker than the ground; cord and outer end of cell 1*st* M_2 vaguely seamed with darker; axillary angle dusky; veins medium brown. Venation: Sc_1 ending opposite or just beyond the origin of *Rs*, Sc_2 near its tip and opposite this origin; inner end of cell R_3 lying far basad of the other elements of the anterior cord, about opposite the cephalic end of *m-cu*; cell 1*st* M_2 small, shorter than vein M_4; *m-cu* oblique, about three-fifths its length before the fork of *M*.

Abdomen, including hypopygium, brownish-black. Male hypopygium with the caudal

border of tergite strongly convex, the cephalic margin much less strongly so; setae of tergite sparse, including a pair on either side. Basistyle with the ventromesal lobe elongate, with numerous long setae on outer third, including a small pencil of darker bristles; a slender blackened lobe on face of style, this tipped with several elongate bristles. Dorsal dististyle moderately stout, heavily blackened, a little expanded before the long straight apical spine. Ventral dististyle of nearly the same area as the basistyle, more or less triangular in outline, gradually narrowed into the rostral prolongation, the latter with three slender spines on the outer margin near base, these placed close together (a single ventral dististyle of the unique type remains). Gonapophyses with mesal-apical lobe an acute curved blackened hook.

Holotype, ♂, River Makabusi, Salisbury, Southern Rhodesia, March, 1932 (*Alexander Cuthbertson*).

The nearest relative of the present fly is *Limonia* (*Dicranomyia*) *marshalli* (Alexander), which has rather similar elongate unpatterned wings. In this species the wings are clearer, with distinctive venation, including the position and course of *m-cu*. It must be assumed that the trispinous condition of the ventral dististyle is normal for the species.

Atarba (**Atarbodes**) **rhodesiae** sp. n.

General coloration chestnut yellow, unpatterned; antennae with basal four or five flagellar segments testaceous yellow, the outer ones passing into brown; legs yellow, only the terminal tarsal segments weakly infuscated; wings with a yellow tinge; *Sc* short, Sc_1 ending opposite or just beyond the origin of *Rs*; branches of *Rs* diverging very gradually, cell R_2 at margin more extensive than cell R_3; male hypopygium with the dististyle single; gonapophyses produced into a slender spine, its tip strongly curved.

Male. Length about 4·5–4·8 mm.; wing 5·5–6 mm.; antenna about 1·2–1·3 mm.

Rostrum yellow; palpi brown. Antennae with scape and pedicel yellow; basal four or five flagellar segments pale testaceous yellow, the outer segments passing into dark brown; flagellar segments short-oval, the terminal one more elongate; verticils exceeding the segments. Head testaceous yellow.

Thorax almost uniformly light chestnut yellow, without pattern. Halteres with stem yellow, knob weakly darkened. Legs with the coxae and trochanters chestnut yellow; remainder of legs yellow, the tips of femora not or scarcely darker; terminal tarsal segments weakly infuscated; no tibial spurs. Wings with a yellowish tinge, the prearcular and costal fields somewhat more saturated yellow; veins yellow. Macrotrichia of veins longer and more conspicuous than in *capensis*. Venation: *Sc* short, Sc_1 ending opposite or just beyond the origin of *Rs*; branches of *Rs* diverging from one another very gradually, cell R_2 at margin being more extensive than cell R_3; cell 1*st* M_2 rectangular. In *capensis*, the branches of *Rs* are more divergent, the anterior one nearly straight, cell R_2 at margin being only about four-fifths as extensive as cell R_3

Abdominal tergites brownish-yellow; sternites and hypopygium clear yellow. Male hypopygium with the single dististyle appearing as a pale blade, on the outer margin at near midlength bearing a very powerful curved blackened arm that is tipped with several strong spines, with fewer appressed spines on the outer margin; surface of style at and near the broad juncture of the arm with about fifteen conspicuous setigerous punctures. Gonapophyses appearing as flattened plates, each produced into a slender spine, its tip strongly curved. Aedeagus elongate, the truncated apex with abundant delicate pale setulae.

Holotype, ♂, Chirinda Forest, Southern Rhodesia, altitude 3,600 feet, November, 1930, at light in forest (*Cuthbertson* No. 2807). *Allotopotype*, ♀, *Paratopotypes*, 2 ♂.

The most similar regional species is *Atarba* (*Atarbodes*) *capensis* Alexander, which differs in the coloration of the body, antennae and legs, and in the details of venation. I cannot give a description of the male hypopygium of *capensis*. Compared with the tropical East African *A.* (*A.*) *jeanneli* (Riedel), the present fly differs very conspicuously in the venation, antennae and structure of the male hypopygium.

Gonomyia (Idiocera) subspuria sp. n.

General coloration brownish-grey to plumbeous grey, the surface opaque throughout; antennae black; femora and tibiae obscure yellow, the tips more infuscated; wings with a greyish tinge, the prearcular and costal regions light yellow; stigma very pale brown; Sc_1 very long, nearly two-thirds the length of the long *Rs*, ending at near one-sixth the length of *Rs*; vein R_4 strongly arcuated, only a little shorter than the petiole of cell R_3; abdominal tergites dark brown.

Female. Length about 6·5 mm.; wing 6 mm.

Rostrum and palpi black. Antennae black throughout; flagellar segments subcylindrical to long-oval, the longest verticils unilaterally distributed, slightly exceeding the segments in length. Head dark grey, with a more brownish-grey spot on anterior vertex, the latter broad, approximately four times the diameter of scape.

Pronotum plumbeous grey, pretergites a little more brightened. Mesonotum dark brownish-grey, the surface opaque; lateral praescutal borders paler grey; pseudosutural foveae black. Pleura dark plumbeous grey, without pattern. Halteres obscure brownish-white. Legs with the coxae plumbeous; trochanters obscure yellow; femora and tibiae obscure yellow, their tips more infuscated; basitarsi obscure yellow, outer tarsal segments passing into black. Wings with a greyish tinge, the prearcular and costal regions light yellow; stigma very pale brown, scarcely darker than the ground; veins pale brown, more yellowed in the brightened fields. Venation: *Sc* short, Sc_1 ending a short distance beyond the origin of *Rs*, at near one-sixth or one-seventh the length of the latter; Sc_1 very long, nearly two-thirds the length of the long *Rs* or about four times *r-m*; petiole of cell R_3 weakly angulated at near one-third the length; vein R_3 very short and nearly transverse, subequal to the basal section of vein M_{1+2}; vein R_4 about five times as long, arcuated, a little shorter than the petiole of cell R_3; cell *2nd* M_2 about one-half longer than its petiole; *m-cu* about one and one-half times its length before the fork of *M*; anterior arculus faintly preserved.

Abdominal tergites and basal sternites dark brown, the outer sternites more brownish yellow.

Holotype, ♀, Stamford Farm, Salisbury, Southern Rhodesia, 7th December, 1935 (*Cuthbertson* No. 4281).

The most similar regional species are *Gonomyia* (*Idiocera*) *aldabrensis* (Edwards) and *G.* (*I.*) *spuria* Bergroth, from both of which the present fly differs in the details of coloration of the body, legs and wings, and in the details of venation. The more diagnostic features of the male hypopygia have not been described for any of these species.

Gonomyia (Idiocera) glabriapicalis sp. n.

Size relatively large (wing, male, 6 mm. or more); mesonotum brownish-grey, variegated with darker brown and yellow; head above dark grey, the front and orbits clearer grey; halteres infuscated; femora obscure yellow, the tips weakly infuscated; tibiae yellow, tips narrowly black; wings brownish-yellow, with a very restricted brown pattern; *Sc* short, Sc_1 ending about opposite the origin of *Rs*; cell R_3 relatively large, the arcuated vein R_4 subequal in length to the petiole of cell R_3; *m-cu* about twice its length before the fork of

M; male hypopygium with the apex of basistyle subacute and glabrous; three dististyles, the intermediate and inner styles appearing as simple, nearly straight rods; aedeagus straight, entirely pale, the apex narrowed and feebly dilated into a small head.

Male. Length about 5·5–6 mm.; wing 6–6·8 mm.

Female. Length about 7·5 mm.; wing 7 mm.

Rostrum brownish-black; palpi black. Antennae with scape infuscated beneath, lighter coloured on upper face; pedicel obscure-yellow; basal flagellar segments whitened, the outer ones passing into brown; flagellar segments oval to long-oval. Head dark grey, the front and orbits clearer light grey or buffy grey.

Pronotum brownish-grey medially, obscure yellow on sides; pretergites pale yellow. Mesonotum brownish-grey, the praescutum with more or less distinct darker stripes, best shown by the darker posterior half of the median stripe; scutum brownish-grey, very restrictedly patterned with darker brown, the posterior lateral callosities orange; scutellum orange, the median region at base narrowly darkened; mediotergite brownish-grey, yellow laterally, pleurotergite obscure yellow, its ventral portion more pruinose. Pleura reddish-brown to brown, with a more or less poorly indicated, more yellowish, longitudinal stripe beginning on propleura, crossing the dorsal sternopleurite on to the meron, this stripe best indicated in the holotype; dorsopleural membrane pale yellow. Halteres infuscated, the extreme base of stem brightened. Legs with coxae pale, weakly infuscated on basal portions; trochanters testaceous yellow; femora obscure yellow, the tips weakly infuscated; tibiae yellow, the tips more narrowly but conspicuously black; basitarsi yellow, the tips and remainder of tarsi brownish-black. Wings with a brownish-yellow tinge, the prearcular and costal fields clearer yellow; a very restricted and inconspicuous brown pattern, as follows: Arculus; origin of *Rs*; cord and *m-cu*; stigma and tip of vein R_4; veins obscure yellow to brownish-yellow, somewhat darker in the patterned areas. Venation: *Sc* short, Sc_1 ending opposite or immediately beyond origin of *Rs*; cell R_3 relatively large, the arcuated vein R_4 being subequal to or even longer than the petiole of cell R_3; cell *2nd* M_2 about one-half longer than its petiole; *m-cu* about twice its length before the fork of *M*.

Abdominal tergites dark brown, the posterior borders of the segments very narrowly yellow; sternites yellow; hypopygium brownish-yellow. Male hypopygium with the apical lobe of basistyle elongate, flattened, subacutely pointed at apex, the distal third or more glabrous. Three dististyles, the outer strongly and unequally bifid, the lower blackened branch about one-half as long as the outer, the latter more pointed at apex; intermediate branch or style shortest, appearing as a nearly straight glabrous pale rod, its apex subacute; inner style of about the same shape as the last but somewhat longer, having about twice the area, its tip obtuse, surface with about eight long pale setae. Aedeagus straight, entirely pale, the surface with about a dozen pale setae; apex narrowed, dilated into a small head but scarcely decurved.

Holotype, ♂, Stamford Farm, Salisbury, Southern Rhodesia, 7th December, 1935 (*Cuthbertson* No. 4281). *Allotopotype*, ♀, 30th November, 1935. *Paratopotype*, ♂, with the allotype.

Gonomyia (*Idiocera*) *glabriapicalis* is readily distinguished from the other African species of the subgenus that have patterned wings by the structure of the male hypopygium. It is most similar to *G.* (*I.*) *thomassetiana* sp. n., yet entirely distinct.

Gonomyia (Idiocera) thomassetiana sp. n.

Mesonotum chiefly grey, the praescutum with four brown stripes; thoracic pleura, including pleurotergite, clear pale yellow, vaguely patterned with more reddish areas; femora yellow, tips conspicuously brownish-black; wings with a weak greyish tinge, very restrictedly and inconspicuously patterned with brown; Sc_1 ending about opposite one-

fourth the length of *Rs*, Sc_2 just before the origin of the latter ; cell R_3 very small ; *m-cu* about twice its length before the fork of *M* ; male hypopygium with the lobe of basistyle elongate, obtuse at tip ; three dististyles, the outer one forked at apex ; intermediate style a strongly curved rod, the tip blackened and narrowed into a powerful spine, with additional scabrous points before the spine ; aedeagus entirely pale, at apex bent into a small curved crook.

Male. Length about 5 mm. ; wing 5·5 mm.

Rostrum and palpi dark brown. Antennae dark brown ; flagellar segments oval, with verticils that exceed the segments in length. Head brownish-grey.

Pronotum brown, yellow on sides ; pretergites yellow. Mesonotal praescutum grey, with four brown stripes ; pseudosutural foveae reddish-brown ; posterior sclerites of notum brownish-grey, the pleurotergite abruptly light yellow. Pleura pale yellow, including the dorsopleural membrane ; very faint to scarcely evident more reddish areas on ventral anepisternum and ventral sternopleurite. Halteres weakly infuscated, especially the knobs. Legs with the coxae pale yellow, more or less reddened at bases ; trochanters yellow ; femora yellow, the tips rather broadly and conspicuously brownish-black, the amount subequal on all legs and involving about one-tenth of the segment ; tibiae and basitarsi brownish-yellow, the tips narrowly darker ; outer tarsal segments brownish-black. Wings with a weak greyish tinge, very restrictedly and inconspicuously patterned with brown, as follows : A small narrow stigmal area ; origin of *Rs* ; cord and *m-cu* ; tip of vein R_3 ; veins brown. Venation : *Sc* moderately long, Sc_1 ending about opposite one-fourth the long *Rs*, Sc_2 just before the origin of *Rs* ; cell R_3 very small, vein R_3 short and straight, oblique ; vein R_4 about three times as long, strongly upcurved, particularly at tip ; petiole of cell R_3 from five to six times as long as vein R_3 ; cell *2nd* M_2 about one-half longer than its petiole ; *m-cu* about twice its length before fork of *M*.

Abdominal tergites brown, sternites clear light yellow ; hypopygium chiefly infuscated. Male hypopygium with the apical lobe of basistyle elongate and relatively slender, about two-thirds as long as the remainder of style, the tip obtuse. Three dististyles, the outer one conspicuously branched at apex, its outer arm a long curved spine, the inner arm a short flattened blade, surface of stem with very abundant long pale setulae ; intermediate style strongly curved, its apical third blackened, narrowed to an acute blackened spine, before the apex with a few short scattered scabrous points ; inner dististyle a trifle longer, at apex dilated into a weak irregular blackened head, provided with two or three strong setae, with a row of about six or seven smaller pale setae down the stem. Aedeagus relatively stout, entirely pale, at apex bent into a small curved point or crook.

Holotype, ♂, Weenan, Natal, December, 1926 (*H. P. Thomasset*) ; British Museum through Imperial Bureau of Entomology, 1927—94.

Gonomyia (*Idiocera*) *thomassetiana* is named in honour of the collector, Dr. H. P. Thomasset. The species is entirely distinct from the other regional members so far described that have the wings more or less distinctly patterned, including *G.* (*I.*) *bistylata* Alexander. As is usual in this genus and many others in the family, the most distinctive specific characters are to be found in the male hypopygium.

Gnophomyia silindicola sp. n.

Head, thorax and abdomen black ; antennae uniformly blackened ; halteres yellow ; legs with all coxae black, femora orange, the tips broadly black ; tibiae black, with a conspicuous yellow ring at or close to base ; wings with a strong brownish tinge, the base broadly yellow ; a narrow, incomplete more whitened band before cord ; no macrotrichia in cells of wing.

Female. Length about 10 mm. ; wing 8·8 mm.

Rostrum and palpi black. Antennae black throughout ; flagellar segments long-oval,

Head dull black; anterior vertex broad, more than twice the width of the exposed portion of eye.

Thorax uniformly black. Halteres with stem brownish-yellow, knob clear light yellow. Legs with all coxae black; trochanters orange, the posterior pair brownish-yellow; femora orange, the tips broadly and abruptly black, on fore legs including about the distal two-fifths, on posterior femora nearly the outer fourth; tibiae black, with a conspicuous yellow ring at or immediately beyond base, distinct on all legs, on fore pair including about one-fourth the length of the segment, on posterior legs somewhat less than one-fifth; tarsi black. Wings with a strong brownish tinge, the broad base yellow; a narrow incomplete whitish band before cord, extending from vein *R* across the outer ends of cells before cord, barely reaching vein 1*st A*; cells *C*, *Sc* and 1*st A* dark; no brightening beyond cord; veins dark brown, a little brighter in the white band, clear yellow in the prearcular yellow area. No macrotrichia in cells of wing. Venation: Sc_1 ending just beyond fork of *Rs*, Sc_1 long, nearly equal to cell 1*st* M_2; R_2 and R_{2+3} subequal in length, about one-half R_{1+2}; cell 1*st* M_2 small, rectangular, shorter than any of the veins beyond it; *m-cu* at near one-third the length of cell 1*st* M_2.

Abdomen, including ovipositor, uniformly black.

Holotype, ♀, Chirinda Forest, Southern Rhodesia, altitude 3,600 feet, December, 1935 (*Cuthbertson* No. 4315).

By my key to the African species of *Gnophomyia* Osten Sacken (1930, *Rev. Zool. Bot. Afr.* **19**: 356–358), the present fly runs to couplet 3, including *Gnophomyia elegans* (Wiedemann) and *G. chirindensis* Alexander. The species is closest to *elegans*, differing in the uniformly blackened antennae and in the very narrow, incomplete whitened band before the cord of the wing.

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1948

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" June 2

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